TKJ4215 Statistical Thermodynamics in Chemistry and Biology 2018

Tentative plan (January 9, 2018)

Recommended exercises are taken from the book. Exercises labeled with an *E*, e.g. *E6.1*, are taken from the file *Extra exercises*. Exam tasks for each chapter are listed to the right.

Date		Ch.	Recommended exercises	Chapter comments	Exams
8.1	L-POÅ	-	-	Only introduction to the course (separate note)	
12.1	L-RC	1		Also introduction to statistical mechanics (separate note)	
15.1	L-RC	2	E2.1	Included: Appendix B on *Stirling's approximation*	
15.1	E		1.2, 1.6, 1.11, 1.15	Not discussed: *Conditional probabilities*, p. 7-10; *Distribution functions*, p. 14-16, 18-22	
			2.1, 2.2, 2.3	However, *Distribution functions* are included in the exercises.	
18.1	E		Python exercise 1		
19.1	L-RC	3		Entire chapter.	Aug-15:1(a)
					Aug-15:2
22.1	L-RC	5		Entire chapter. The method of Lagrangian multipliers from ch. 4 is used.	
22.1	E	4	3.2, 4.1, 4.3, 4.6, 4.10	Math chapter for repetition. Not lectured.	
				Includes exercises on constrained minimization by Lagrangian multipliers.	
25.1	E		5.1, 5.3, 5.6		
26.1	L-RC	6		Entire chapter.	June-17:1
					Aug-17:2
29.1	L-RC	7		Entire chapter.	Aug-15:1(b)
29.1	E		E6.1, E6.2, 6.1, 7.9		
1.2	E		Python exercise 2		
2.2	L-POÅ	8	E8.1	Entire chapter	
5.2	L-POÅ	9	E9.4	Entire chapter. The Gibbs-Duhem relation is kept in the notes (removed in the 2nd ed. of the book)	June-12:3
					June-15:3(a)
					Aug-15:4
5.2	E		8.1, 8.15, E9.1, E9.2, E9.3, 9.1, 9.7	Many similar exercises. Good training, but not necessary to do all at once.	June-14:4
8.2	E		Python exercise 3		
9.2	L-POÅ	10	June-12:1(a-c)	Entire chapter. If too many exercises, 10.7 can be excluded first.	Aug-12:1
12.2	L-POÅ	10,11	E11.2	Two versions of the vibrational partition function are discussed.	June-16:2
12.2	E		10.1, 10.5, 10.6, 10.7, 10.9		June-13:1(b)
			Repetition: E10.1, E10.2		June-14:2
15.2	E		Python exercise 4		
16.2	L-POÅ	11			
		12		Not included in the curriculum	
19.2	L-POÅ	13	June-12:1(d)	Entire chapter.	June-13:2(b-c)
					June-17:3
19.2	E		E11.1, 11.5, 11.6, 11.7, 11.10, 11.18	The paragraphs on the *Equipartition theorem* (p. 212-216) are not included.	
			Repetition: E11.3, E11.4		
22.2	E		13.1, 13.2, 13.9a		Aug-15:3
23.2	L-POÅ	14	E16.2(a-b)	Entire chapter.	June-13:1(a)
26.2	L-POÅ	15	Aug-12:2(a-b)	Entire chapter.	Aug-12:2

26.2	E		14.1, 14.5 Repetition: E14.1		June 15:3(b)
1.3	E		E15.1, E15.2, 15.2		June-13:3 Aug-14:1
2.3	L-POÅ	15,16	E16.2(c)	Dropped the paragraphs on *activity*, p. 287-289.	June-15:1
5.3	L-POÅ	16		Also, did not use *activity* in the subsequent paragraphs of chapter 16.	Aug-17:3
5.3	E		16.6, 16.7, 16.10, 16.12, E16.3		
8.3	E		Python exercise 5		
10.3	L-RC	17	June-12:2	Not included: p. 320-322. See appendix G for repetition of mathematics.	Aug-15:1(c)
		18		Not included	
12.3	L-RC	19		Some parts not included (p. 373-375, p. 377-380)	
12.3	E		17.2, 19.5, 19.9		Aug-14:2
15.3	E		Python extra		
16.3	L-RC	20,21	E21.2	Own introductory slides to electrostatics (separate file)	
19.3	L-RC	22	E22,2	Pages 437-451 are not included	June-16:1
19.3	E		20.9, 20.10, 20.11 21.1, E21.1 Repetition: E21.3	Entire chapter 20. Chapter 21: p. 411-414 (until Poisson's eq.) and p. 416-421 are not included.	
22.3	E		E22.1	The presentation of half-cell reactions is slighty different from the book.	
		23		Not included.	
23.3	L-RC	25	June-14:3	Pages 502-512 are not included.	Aug-17:1
5.4	E		25.2, E25.1		
6.4	L-POÅ	24	Aug-12:3	Pages 474-476 and 480-486 are not included.	June-15:2 June-17:2
		26		Not included.	
9.4	L-POÅ	27	E27.2	Pages 548-549 (chromatography) are not included.	June-13:2(a)
9.4	E		E24.1, 24.4 a, 24.5, 24.7		Aug-15:1(d) Aug-14:3
12.4	E		Python exercise 6		
		28-31		Not included.	
13.4	L-POÅ	32	June-13:4	Pages 652-656 are not included.	
		33-34		Not included.	
16.4	L	Rep.			
16.4	E		E27.1, 27.6, 27.8		June-14:1
19.4	E		32.1, 32.5		
20.4	L	Rep.			
23.4	L	Rep.		A summary, see summary.pdf, is presented	
23.4	E		Python extra		